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NOTES ON MEXICAN REPTILES
AND AMPHIBIANS

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Knowing my interest in the herpetology of Mexico, Mr. Karl P. Schmidt requested me to set in order the accumulated reptiles and amphibians from Mexico in the collections of Field Museum. I have prepared a report embodying such notes of interest and such taxonomic changes as developed in the course of work on this collection. Besides taxonomic and distributional notes, a new generic name is proposed and three new forms of lizards and one new subspecies of snake are described.

From Mexico, exclusive of Lower California, 1,931 specimens are available. These represent 236 species and subspecies, which include 9 salamanders, 28 frogs and toads, 102 lizards, 78 snakes, 2 crocodiles, and 16 turtles. In addition to specimens received in exchange, and other minor lots of material, the collection is derived in the main from the Field Museum expeditions of S. E. Meek and F. E. Lutz to central Mexico in 1901 (608 specimens), of S. E. Meek to southern and eastern Mexico in 1903 (577 specimens), of Edmund Heller and C. M. Barber in 1904 (290 specimens); and from the gift of collections made by E. Wyllys Andrews in Yucatán and Quintana Roo in 1934 and 1937 (247 specimens). The localities for the Meek collections were defined by Dr. Meek in his paper on the fresh-water fishes of Mexico (1904, pp. XXVIII-XXX).

Notes on the lizards of the genus *Cnemidophorus* are in the main reserved for a future paper. It is evident that Burt's arrangement of the Mexican forms of this genus (Burt, 1931) requires revision.

I am indebted for information regarding specimens or for other assistance to Dr. F. Angel, of the Museum d'Histoire Naturelle, Paris; to Dr. William M. Clay, Mr. D. Dwight Davis, Mrs. Helen T. Gaige, Dr. Norman Hartweg, Mr. William Stickel, Dr. Howard

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K. Gloyd, and Dr. Edward H. Taylor. The pencil sketches of the heads of the new species of *Anolis* are the work of Mr. Albert A. Enzenbacher.

The bibliographic list appended includes the papers which have been wholly or in part based on the Mexican collections in Field Museum.

Siredon mexicanum Shaw.

Gyrinus mexicanus Shaw, Nat. Misc., 9, pls. 343, 344, 1798—Mexico.

Siredon mexicanus Baird, Journ. Acad. Nat. Sci. Phila., (2), 1, p. 292, 1849.

Distrito Federal: Vicinity of Mexico City, 13 (708, J. O. Snyder, 1899; 19179, Emil Witschi, 1938; 19255, 21851, 22887-90, Gen. Biol. Supply House, 1933).

Mexico: Lake Chalco, 6 (1810), S. E. Meek, 1901.

Lerma, 1 (1383), S. E. Meek, 1903.

Texcoco, 2 (1115), S. E. Meek, 1901.

One adult (19179, transformed in captivity by Dr. Emil Witschi) is yellowish below, dark gray above; small, more or less rounded dark spots are scattered over the dorsal and ventral surfaces. In proportions it is easily distinguishable from adult *tigrinum*; the head is broader than long (20×22), the body short and stout (snout to vent 89), the limbs long and powerful (foreleg 28; hind leg 32).

The larvae are distinguishable from those of *tigrinum* by color pattern. In *mexicanum*, small, more or less rounded, indefinitely outlined black spots are scattered over the dorsal and usually the ventral surfaces, while in *tigrinum* these spots are absent, the larvae more or less unicolor and pale.

Two young larvae (snout to vent 51 and 74) from Texcoco (1115) lack the spots on the belly, and the general ground color is rather pale. The assumption is that the larvae become progressively darker as they grow larger and older.

A large larva from Lerma (1383) may represent a form distinct from that which occurs about Mexico City. Although the ground color is dark in this specimen, as in typical *mexicanum*, the small black spots characteristic of other specimens are lacking. The region in which this specimen was collected is more or less isolated by mountain ranges from the valley of Mexico, from which the other specimens came.

Siredon Wagler (Syst. Amph., pp. 209, 210, 1830; type *axolotl*=*mexicanum*) has priority over *Ambystoma* Tschudi (Mem. Soc. Sci. Nat. Neuchatel, 2, p. 92, 1838; type *subviolacea*=*maculatum*). To

throw all species now referred to *Ambystoma* into the genus *Siredon* would add tremendously to the taxonomic confusion already caused in the group. In avoidance of this procedure, one of two alternatives may be chosen: either officially to discard *Siredon* through action of the International Commission on Zoological Nomenclature, or to restrict the genus, if possible. The latter course seems to be the more satisfactory, for the genus can be restricted to two species, *mexicanum* and *dumerilii*, which normally never transform. *Ambystoma* re-defined therefore excludes these two species, and includes only forms which normally transform into the adult land stage.¹

***Siredon dumerilii* Dugès.**

Siredon dumerilii Dugès, *La Naturelle*, 1, pp. 241–244, pl. 5, 1870—Lake Pátzcuaro, Michoacán.

Michoacán: Pátzcuaro, 4 (958), S. E. Meek, 1901.

The extensive webbing of the digits readily distinguishes larvae of this species from those of *mexicanum* and *tigrinum*. Dunn (*Anat. Rec.*, 51, Suppl., p. 90, 1931) states that they never transform.

The description usually quoted as the original (*Ann. Sci. Nat. Paris*, (5), 15, No. 17, pp. 1, 2, pl. 10, figs. 1–13) was actually published in 1872, two years after the description which appeared in *La Naturelle*.

***Chrysemys picta bellii* Gray.**

Emys bellii Gray, *Syn. Rept.*, p. 31, 1831—type locality unknown.

Chrysemys picta bellii Bishop and Schmidt, *Field Mus. Nat. Hist.*, Zool. Ser., 18, p. 136, 1931.

Chihuahua: Rio Santa Maria, 1 (2440), C. M. Barber, 1902.

This specimen represents the only record of the occurrence of the genus in Mexico. It is a young specimen, the carapace measuring 31 mm. in length. The color pattern of the carapace and plastron is typical.

***Terrapene mexicana yucatana* Boulenger.**

Cistudo yucatana Boulenger, *Ann. Mag. Nat. Hist.*, (6), 15, p. 330, 1895—northern Yucatán.

Quintana Roo: Cobá, 2 (27272–3), E. Wyllys Andrews, 1937.

Yucatán: Chichen Itzá, 1 (27271), E. Wyllys Andrews, 1937.

All agree in having a distinct median keel, a notched jaw, a poorly developed digital web, and four toes. There is no indication

¹It is my understanding, from conversation with Mr. Schmidt, that this is the solution of the problem preferred by Dr. E. R. Dunn.

of a radial pattern on the carapace; in the Cobá specimens the carapace is nearly uniform straw yellow, with some slight darkening along the sutures, while the Chichen Itzá specimen is largely dark above, mottled with large, irregular, lighter areas. The plastron is dark in all, with irregular, less extensive light areas. The head and forelimbs are very pale yellow in the Cobá specimens. The carpal formula for the Chichen Itzá specimen is 2-3-3-3-2. It lacks a zygomatic arch.

The discussion by Lorenz Müller (Zool. Anz., 113, pp. 97-114, 1936) of the variation in a series of 29 specimens of *Terrapene* from the vicinity of Tampico, Tamaulipas, is of much importance in arriving at an understanding of the Mexican species. I do not, however, agree with his conclusion that *yucatana*, *goldmani*, *nelsoni*, and *mexicana* are all one and the same. On the basis of data available at present, I would modify his conclusions as follows:

(1) That *goldmani* and *mexicana* are synonymous.

(2) That *nelsoni* is a distinct species characterized by having four claws on the hind feet and a very flattened carapace (see Ditmars, Zoologica, 17, figs. 31-33; these illustrations apparently were not available to Müller).

(3) That *yucatana* is distinguishable from *mexicana* at least on the basis of average number of toes.

Five specimens recorded from Yucatan all have four claws on the hind feet, while of 32 specimens of *mexicana* recorded from mainland Mexico, only six are four-clawed. Combined with the fact of geographic discontinuity, this appears to be of taxonomic significance. The measurements of our three specimens are as follows:

	27273	27272	27271
Length of carapace.....	151	86	153
Width of carapace.....	112.5	74	112
Length of plastron.....	149	84.5	147
Width of plastron.....	85	53	87
Median gular suture.....	19	13	20
Median humeral suture	22	12	22
Median anal suture.....	41	23	45
Anterior plastral lobe.....	58	33	57
Height	73	44	..

Terrapene ornata Agassiz.

Cistudo ornata Agassiz, Contr. Nat. Hist. U. S., 1, p. 445, 1857—the upper Missouri River and Iowa.

Terrapene ornata Baur, Science, 17, p. 191, 1891.

Chihuahua: south of Lake Santa María, 2 (2002), C. S. Brimley, 1902.

In one specimen the length of the carapace is 127; width at the eighth marginal 108; length of plastron 132; width at femoral plates 78.5. In the other, the length of the carapace is 124, its width 112; length of plastron 125, width 79.

Platypeltis emoryi Agassiz.

Aspidonectes emoryi Agassiz, Contr. Nat. Hist. U. S., 1, p. 407; 2, pl. 6, figs. 4, 5, 1857—Rio Grande River, near Brownsville, Texas.

Platypeltis emoryi Baur, Proc. Amer. Phil. Soc., 31, p. 220, 1893.

Nuevo León: Rodriguez, 2 (1874, 2191), S. E. Meek, 1900 and 1906.

It appears that Malcolm Smith (Bull. Raffles Mus., 3, p. 2, 1930) is correct in concluding that Geoffroy St. Hilaire definitely indicated the type of *Trionyx* as *aegypticus* (= *triunguis*) (Ann. Mus. Hist. Nat. Paris, 14, pp. 4, 5, 20, 1809). It further appears that the soft-shelled turtles of the Old World and the New World are generically distinct, the former having eight costal shields, the latter seven. Since *Trionyx* has as its type an Old World species, the next available name for a New World species is *Platypeltis* Fitzinger (Ann. Wien Mus., 1, p. 127, 1836), whose type species is *ferox* Schneider.

Anolis cozumelae sp. nov. Figure 4.

Type from Cozumel Island, Yucatán. No. 751 Field Museum of Natural History. Male. Collected April, 1899, by C. F. Millspaugh.

Diagnosis.—No dorsal crest on body; tail with a high crest two-thirds as high as the rest of the tail; no conspicuous projecting mid-dorsal scales on caudal crest at the whorls; ventrals smooth, about twice as large as largest dorsals; two mid-dorsal rows of scales distinctly larger than adjacent dorsals, which are but slightly larger than laterals; head scales nearly smooth; about 10 enlarged supraoculars; supraorbital semicircles narrowly in contact medially and separated from occipital by three rows of scales.

Description of type.—Dorsal head scales rugose, smooth or very weakly keeled; frontal ridges weak, divergent, enclosing a very slight depression; five scales bordering rostral between supralabials; five canthal scales, prominently keeled; five rows of loreals; six supralabials to a point below middle of eye; about 10 enlarged supraoculars separated from supraorbital semicircles by one or two (usually two) rows of granules, from superciliaries by three; supraorbital semicircles narrowly in contact medially, separated from occipital by two rows of scales; occipital somewhat smaller than ear opening;

occipital area enclosed posteriorly by two conspicuous, convergent ridges arising at posterior margin of orbit.

Dorsal scales keeled, the two median rows slightly larger than the adjacent scales, which gradually merge with the slightly smaller lateral scales; ventral scales, including those of dewlap, absolutely smooth, about twice as large as largest dorsals; scales of throat keeled.

Scales on anterior surfaces of thigh and lower foreleg subequal, two or three times as large as ventrals on body, keeled; 20 lamellae on the second and third phalanges of fourth toe.

Tail strongly compressed, with a mid-dorsal crest whose greatest proportional height is about two-thirds the diameter of the body of the tail, extending about two-thirds the length of the tail, absent on the distal third; four or five mid-dorsal scales between whorls; subcaudal scales much larger than lateral caudal scales.

Color.—The specimen is somewhat discolored as a result of many years of preservation. The general dorsal tone is light brown; ventral surfaces lighter; limbs banded, the toes very distinctly; dewlap dark (purple?) anteriorly, fading posteriorly; sides of head light; temporal region mottled with dark and light brown.

Measurements.—Snout-vent length 64; tail (broken) 80; hind leg 52; tibia 16; snout to ear 17; head width 13.

Remarks.—The only species of *Anolis* with a caudal crest heretofore recorded from Mexico is *sagrei*, a species known also from the West Indies and characterized by having keeled ventral scales, strong, nearly parallel frontal ridges, strongly keeled head scales, and one row of small scales between supraorbital semicircles.

The present specimen thus differs markedly from *sagrei*, which has been recorded from Cozumel Island (Cope, Bull. U. S. Nat. Mus., 32, p. 32, 1885), and I find it impossible to allocate it to any other compressed-tailed species from the West Indies or Central America.

Anolis laevis Wiegmann.

Anolis laevis Wiegmann, Herp. Mex., p. 47, 1834—Mexico.

Vera Cruz: Xico, 1 (1345), S. E. Meek, 1903.

The specimen differs from *sericeus* in lacking a central purple spot in the dewlap, in having enlarged postanals, and in having distinctly smaller dorsals and ventrals; it differs from *nebulosus* and *nebuloides* in having smaller ventrals and the supraoculars in two series. The dorsal scales are keeled, the two median rows the largest, gradually decreasing in size laterally. Snout-vent length 37; tail broken; snout to ear 9; tibia 6.7; head width 7.

The supraorbital semicircles are in contact; frontal ridges nearly obsolete; scales on snout rugose, some unicarinate; supraoculars faintly keeled; two rows of scales between occipital and supraorbital semicircles; occipital less than twice greatest diameter of ear; 14 lamellae under third and fourth phalanges of fourth toe.

Anolis nebuloides Bocourt.

Anolis nebuloides Bocourt, Miss. Sci. Mex., Rept., p. 74, pl. 13, fig. 10, 1873—Putla, Oaxaca.¹

Oaxaca: Cuicatlan, 1 (990), S. E. Meek, 1901.

Oaxaca, 1 (989), S. E. Meek, 1901.

San Gerónimo, 1 (1475), Heller and Barber, 1904.

These specimens are differentiated from those referred to *nebulosus* solely on the basis of relative size of the dorsal and ventral scales; in the southern specimens the difference in relative size of dorsal and ventral scales is perceptibly greater than in the northern specimens. The presumed differences in carination and in character of the supraorbital semicircles do not hold.

Anolis schmidti sp. nov. Figure 4.

Type from Manzanillo, Colima. No. 1667 Field Museum of Natural History. Male. Collected by C. H. T. Townsend, 1903.

Diagnosis.—A small *Anolis*, with a single row of large supraoculars narrowly in contact with supraorbital semicircles; semicircles in contact, separated from occipital by a single row of scales; occipital much larger than ear opening; dorsals small, distinctly keeled, gradually becoming smaller laterally; ventrals not distinctly larger than dorsals, curiously protuberant (not flat), weakly keeled; post-anals distinctly enlarged.

Description of type.—All dorsal head scales smooth, except a few unicarinate scales in internasal region; frontal ridges distinct, diverging anteriorly, enclosing a distinct, depressed, prefrontal area; occipital large, much larger than ear opening, separated by a single row of small, flat scales from supraorbital semicircles; latter composed of rather large scales, broadly in contact medially, separated by three scales at their point of termination at the canthus; two or three very large supraoculars, their width about three-fourths the width of the supraorbital area; supraoculars narrowly in contact with supraorbital semicircles, separated from superciliaries by one

¹ The "Putla, Mexico" of many specimens in the British Museum is apparently the Putla in Oaxaca, located near the Guerrero-Oaxaca border at approximately 17° N. and 98° W.

or two rows of granules; three postrostrals between nasals, followed posteriorly by a transverse row of four scales; four canthals, weakly keeled; first superciliary nearly two-thirds length of orbit; five rows of loreals; subocular series in contact with supralabials; seven supralabials and eight infralabials to a point below middle of eye.

All gular scales smooth, convex; dorsal scales rather small, five or six times as large as the granular laterals, gradually decreasing in size laterally, distinctly keeled; ventral scales about the same size as the largest dorsals, not flat but somewhat conical and projecting, weakly keeled, pointed.



FIG. 4. *Anolis cozumelae* (at left), $\times 1\frac{1}{2}$. *Anolis schmidti* (at right), $\times 2$.

Four rows of enlarged, keeled scales on anterior surface of lower foreleg; six rows of slightly larger, keeled scales on anterior surface of thigh; ventral shank scales keeled; 15 lamellae under the third and fourth phalanges of the fourth toe; postanals distinctly enlarged; tail rounded; mid-dorsal row of tail scales slightly larger than adjacent scales.

Color.—Pale yellow above and below; a conspicuous, yellow, dark-edged spot on dorsal posterior surface of shank; fingers and toes faintly barred; dewlap apparently yellow.

Measurements.—Snout-vent length 45; tail broken; snout to ear 12; width of head 7; hind leg 33; tibia 9.7.

Remarks.—This species is distinctly different from *nebulosus* and *nebuloides* in the character of the ventral scales. Its nearest relative may be *utowanae*, which differs in having flat, pavement-like ventral

scales, three to five series of scales between occipital and supraorbital semicircles, occipital smaller than ear opening, only three rows of loreals, and in other characters.

Ctenosaura pectinata Wiegmann.

Cyclura pectinata Wiegmann, *Herp. Mex.*, p. 42, pl. 2, 1834—Colima, Colima.

Ctenosaura pectinata Boulenger, *Cat. Liz. Brit. Mus.*, 2, p. 197, 1885.

Colima: Manzanillo, 1 (1640), C. H. T. Townsend, 1903.

Paso del Rio, 1 (1674), Emerick, 1904.

Guerrero: Balsas, 3 (1725), S. E. Meek, 1901.

Laguna Coyuca, 1 (25882), Walter Mosauer, 1935.

Morelos: Puente de Ixtla, 2 (1094), S. E. Meek.

Yautepec, 1 (1349a), S. E. Meek, 1903.

Oaxaca: San Gerónimo, 1 (1455), Heller and Barber, 1904.

Sinaloa: Mazatlán, 1 (442).

The west coast *Ctenosaura* seem to be in some confusion despite recent work. Specimens in the above series are not consistent in their characters: two of them (1455, 1094a) have the caudal whorls as in *acanthura*, but neither has the dorsal crest interrupted in the sacral region as it normally is in that species; four (1640, 1094, 1725a) have the dorsal crest interrupted at the sacrum; in the others it is complete.

Phrynosoma orbiculare cortezii Bocourt.

Tapaya cortezii Duméril and Bocourt, *Miss. Sci. Mex., Rept.*, pl. 11, fig. 2, 1870—Hacienda del Jasmin, between Orizaba and Cordova, Vera Cruz.

Phrynosoma orbiculare cortezii Smith, *Trans. Kans. Acad. Sci.*, 37, p. 291, 1935.

Puebla: Atzitzintla, 3 (1515), Heller and Barber, 1904.

The form is very easily distinguished from the typical subspecies by the lesser length of the occipital spines (shorter than temporals). It is notable that *o. cortezii* has a broken, midventral longitudinal dark line, while *o. orbiculare* lacks it.

Uta irregularis Fischer.

Phymatolepis irregularis Fischer, *Abh. Nat. Ver. Brem.*, 7, p. 232, pl. 17, figs. 1-4, 1882—Mexico.

Uta irregularis Boulenger, *Cat. Liz. Brit. Mus.*, 2, p. 216, 1885.

Guerrero: Laguna Coyuca, near Acapulco, 1 specimen (25884), Walter Mosauer, 1935.

A broken, irregular series of small scales separates the two series of larger scales at irregular intervals. Femoral pores 8-9 (lower than in *bicarinata* and its very close relatives, *tuberculata* and *nelsoni*). The species differs from other Mexican species of the group (except

perhaps *gadovi*, which I have not seen) in having the blue belly patches of the male distinctly outlined and restricted to two small, oval areas on the chest, narrowly separated medially. The ventral scales are feebly mucronate, but not keeled even on the chest (where keeling is most prominent in *bicarinata* and its allies).

Gaigeia gen. nov.

Type.—*Lepidophyma gaigeae* Mosauer, *Herpetologica*, 1, pp. 3-5, pl. 2, 1936.

Diagnosis.—Dorsal lepidosis nearly uniform; caudal scales uniform; no supraoculars; two frontals with a longitudinal median suture; normally no prefrontal; no infralabials (chin-shields bordering labium); a well-differentiated postocular; ventrals flat.

Remarks.—The genus differs from the monotypic *Lepidophyma* in the following characters (opposing characters of *Lepidophyma* in parentheses): dorsal lepidosis nearly uniform (heterogeneous); no differentiated tail whorls (present); ventral scales smooth, flat (keeled, convex); normally no median prefrontal (normally present). In all these characters, except the last, *Gaigeia* resembles *Xantusia*, a genus which it superficially resembles much more than *Lepidophyma*. It differs from *Xantusia* in the following characters (opposing characters of *Xantusia* in parentheses): no supraoculars (present); no infralabials (present); a well-differentiated postocular (absent; scales in this region granular); normally no median prefrontal (present). Again, in all these characters, except the last, *Gaigeia* resembles *Lepidophyma*. It appears obvious that it stands in a position intermediate between *Lepidophyma* and *Xantusia*, combining their characters. The normal absence of the median prefrontal is unique.

The erection of a monotypic genus for *Lepidophyma gaigeae* will not, I believe, obscure its relationships; on the contrary, it appears to clarify them, for the species in question is no more closely related to *Lepidophyma flavomaculatum* than to *Xantusia*.

The three continental genera of the family *Xantusiidae* are ecologically as well as geographically isolated: *Xantusia* in low, arid or semi-arid regions; *Gaigeia* in high mountains at the coniferous belt; and *Lepidophyma* in moist, tropical lowlands.

One paratype of *Gaigeia gaigeae* is in Field Museum.

Cnemidophorus angusticeps Cope.

Cnemidophorus angusticeps Cope, *Proc. Amer. Phil. Soc.*, 17, p. 95, 1877—Yucatán.

Quintana Roo: Cobá, 2 (27311–2), E. Wyllys Andrews, 1937.

Yucatán: Chichen Itzá, 9 (27313–21), E. Wyllys Andrews, 1937.

Since this form occupies an isolated area in which there is little topographic variation, it appears to have become quite well differentiated. It is characterized by having six distinct, unbroken white lines in the young and old of both sexes; sometimes, in the adults or young, an additional median, poorly outlined light stripe is present. The tail and hind limbs are pink and the latter light-spotted; the pink suffusion is especially pronounced on the tail and is more evident in females than in males.

The belly of males is suffused with blue, the gular region pinkish. The postantibrachials are reduced, not granular, but not greatly enlarged. The femoral pores vary between 18 and 23, average 20 (18, one; 19, seven; 20, seven; 21, four; 22, one; 23, one).

Cnemidophorus deppii deppii Wiegmann.

Cnemidophorus deppii Wiegmann, *Herp. Mex.*, p. 28, 1834—Mexico; restricted by Hartweg and Oliver (*vide infra*) to Tehuantepec, Oaxaca.

Cnemidophorus deppii deppii Hartweg and Oliver, *Occ. Papers Mus. Zool. Univ. Mich.*, 359, pp. 1–3, 1937.

Oaxaca: San Gerónimo, 9 (1473), Heller and Barber, 1904.

These specimens seem typical of *deppii deppii*, having 18 to 21 femoral pores, 4 to 6 scales from snout to ventral scales, and 2 to 5 interorbital scales (one exceptional specimen with 7–8 interorbitals).

Cnemidophorus deppii lineatissimus Cope.

Cnemidophorus lineatissimus Cope, *Proc. Amer. Phil. Soc.*, 17, p. 94, 1877—Colima and Guadalajara.

Cnemidophorus deppii lineatissimus Van Denburgh, *Occ. Papers Calif. Acad. Sci.*, 5, p. 463, 1897.

Guerrero: Balsas, 8 (1015), S. E. Meek, 1901.

These specimens are referred to *d. lineatissimus* with some doubt, as no adult males are present in the series. Scale counts indicate, however, a greater affinity for this subspecies than for typical *d. deppii*. The scales between the anus and ventral scutes average 7 (6, four; 7, one; 8, two); femoral pores 14 to 21, average 17 (14, two; 15, two; 16, one; 17, three; 18, four; 20, one; 21, one); interorbital scales (counting from posterior extension of superciliaries forward to the termination of the series) average 7 (3, one; 4, one; 5, two; 6, five; 7, two; 8, one; 9, two; 10, two); usually two complete or incomplete rows of granules between supraoculars and superciliaries (one exception). In all these characters except the last the specimens approach

d. lineatissimus more closely than *d. deppii*; the reverse is true of the last character.

One other character may be more or less typical of *d. lineatissimus*: the contact of the posterior preocular and the loreal. If so, the Balsas specimens are intermediate, for this condition occurs on both sides of only five specimens and on one side of one. In 29 specimens of *d. deppii*, the condition mentioned occurs on both sides in only four, on one side in three.

Cnemidophorus deppii oligoporus subsp. nov.

Type from Perez, Vera Cruz. No. 29145 Field Museum of Natural History. Male. Collected by Julius Friesser in 1903. Paratypes ten, including three topotypes (1683, Julius Friesser, 1903), three from Otopa, Vera Cruz (1313, S. E. Meek, 1903), and four from Vera Cruz, Vera Cruz (1343, S. E. Meek, 1903).

Diagnosis.—A form closely related to *deppii deppii*, differing from that form in average number of femoral pores (16) and in average number of scales from the anus to the ventral scutes; from *deppii lineatissimus* it differs in coloration and in having the posterior preocular usually separated from the loreal.

Description of type.—Three supraoculars; row of granules between oculars and median head scales short, not extending to suture between second and third supraoculars, consisting of 6 or 7 scales (counting forward from the posterior extension of the superciliaries, following the row of largest scales); median gular scales not imbricate; mesoptychial scales somewhat larger than median gular scales, imbricate.

Femoral pores 15–16; scales between anus and ventral scutes number 6.

Eight dorsal light lines, the lateral pair on each side faintly interrupted. Entire ventral surfaces of head, body, thighs, and upper forelegs black.

Measurements.—Snout to vent 68; tail 131.

Remarks.—The most important character for separation of this from the typical form is the number of femoral pores. In seventeen counts of *d. oligoporus*, the average is 16.4, and 82.4 per cent of the counts are 17 or less. In 188 counts of *d. deppii* (specimens from San Gerónimo, Oaxaca; El Rancho, Guatemala; Divisadero, El Salvador; west of San Pedro, Pespire, and San Lorenzo, Honduras) the range is from 16 to 24, the average 19.4, and only 5.9 per cent of the counts are 17 or less.

A second differential character is the number of scales between the anus and ventral scutes. In eight counts of *d. oligoporus*, this number varies between 6 and 8, the average is 6.9, and 100 per cent of the counts are 6 or more. In 99 counts of *d. deppii*, the range is from 4 to 7, the average is 5, and 17.2 per cent of the counts are 6 or more.

The form differs from *d. cozumelae* in the absence of an accessory scute on each side between the interparietal and parietal. From *d. lineatissimus* it differs in ventral coloration of the male (nearly entirely black in *deppii oligoporus*, as in *d. deppii*) and perhaps in the usual separation of the posterior preocular from the loreal (usually not in *d. lineatissimus*).

Cnemidophorus octolineatus Baird.

Cnemidophorus octolineatus Baird, Proc. Acad. Nat. Sci. Phila., 1858, p. 255, 1858—Pesqueria Grande, Nuevo León.

Coahuila: Jaral, 4 (1671), Heller and Barber, 1904.

It appears necessary to employ this name for these specimens, which probably represent a widely distributed form. These are young (maximum snout-vent measurement 56), with eight longitudinal, unbroken light lines, and no spots in the dark fields; the scales on the posterior surface of the lower foreleg are uniformly granular, and the mesoptychial scales small.

In the youngest specimen the median pair of light lines is distinct, many being well separated, but closer to each other than to the adjacent stripes; in larger specimens the median pair tend to fuse together.

The specimens obviously belong to the *tessellatus* group, but differ from *grahamiae*, the only form of that group at present recognized in western Texas and the adjacent area which might be considered conspecific with these specimens, by having a pair of stripes on the mid-dorsal region in the young, instead of one median stripe.

Leptotyphlops maximus Loveridge.

Leptotyphlops maximus Loveridge, Proc. Biol. Soc. Wash., 45, pp. 151, 152, 1932—Chilpancingo, Guerrero.

Guerrero: Balsas, 1 (1263), S. E. Meek, 1901.

Scale rows 14; 224 scales from rostral to tip of tail; 16 subcaudals; total length 168; tail length 9. One supralabial between ocular and nasal, reaching nearly to level of eye, more than twice as deep as broad; nasals in contact medially behind rostral; three infralabials. Seven dorsal rows are stippled with darker color, the ventral rows

white, the dorsal and ventral colors sharply defined laterally. The specimen differs from others of the species particularly in having the nasals in contact behind the rostral.

Leptotyphlops phenops Cope.

Stenostoma phenops Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 128, 1876—Tehuantepec.

Leptotyphlops albifrons Schmidt and Andrews, Field Mus. Nat. Hist., Zool. Ser., 20, pp. 168, 169, 1936.

Yucatán: Chichen Itzá, 4 (20606, 20616–8), E. Wyllys Andrews, 1934.

Scales from rostral to tip of tail, 254, 250, 235, 238, respectively; caudals 18, 19, 25, 22; total length 157, 161, 130, 85; tail length 9, 9, 10, 6.5.

The species is distinct from *albifrons*, with which it has been confused. The Mexican records should be referred to this species or to *bakewelli*. *L. albifrons* has less than 200 dorsals, the head scales are very prominently pitted, the pupil of the eye is invisible (very distinct in *phenops*), the light spot on the head extends over several scales adjacent to the rostral (confined to the rostral in *phenops*), the terminal caudal light spot is equally extensive dorsally and ventrally (mostly confined to ventral surface in *phenops*), and there are various other differences between the two species in the shape of the head and of the head scales.

Geophis dugesii Bocourt.

Geophis dugesii Bocourt, Miss. Sci. Mex., Rept., p. 573, pl. 37, fig. 1, 1883—Tangancicuaro, Michoacán.

Michoacán: 1 (30965), Stanford University.

Female; ventrals 164; caudals 39; supralabials 5–5; infralabials 5–6; oculars 0–1; temporals 1–2, 1–1; total length 179; tail 27.

Bluish black above; an indistinct light band across nape, and two on anterior part of body, enclosing between them two long, oval, uniform black patches; scales on sides with light centers, the size of the light spots increasing ventrally and decreasing posteriorly; upper lip white; chin-shield region stippled with black; belly uniform white; some black stippling present along the sutures of the posterior subcaudals.

A male specimen (Stanford University 4408) agrees in coloration; ventrals 150; caudals 43. The teeth of the lower jaw are 11 or 12, slightly decreasing in size posteriorly; maxilla extending slightly anterior to suture between first and second supralabials; palatine

extending to suture between second and third infralabials; 10 maxillary teeth, subequal, not grooved.

Hemipenis single; sulcus spermaticus forked at a point two-thirds the distance from the base of the organ; distal third papillate, grading into a median third which is provided with heavy spines situated on longitudinal ridges; proximal third smooth, ridged.

These two specimens differ from the description of *dugesii* in two respects: color (*dugesii* with six or seven well-defined, yellowish half rings on anterior half of body) and number of ventrals (176 in the description). Dugès (La Naturaleza, 6, p. 360, 1884) threw doubt upon the correctness of the ventral count, stating that he had counted 156 ventrals before he sent the specimen to Bocourt. The latter number compares well with those of the present specimens of *dugesii*, while the count given by Bocourt is considerably beyond the expected range of variation in one sex of this species. Dr. F. Angel has kindly examined the type at my request and verified Dugès' count. With this information available I have no hesitation in referring these specimens to *dugesii*.

Natrix rhombifera blanchardi Clay.

Natrix rhombifera blanchardi Clay, Ann. Carnegie Mus., 27, p. 251, pl. 25, 1938—near Tampico, Tamaulipas.

Nuevo León: Montemorelos, 1 (1389, paratype), S. E. Meek, 1903.

Tamaulipas: Garza Valdez, 1 (2079, paratype), S. E. Meek, 1901.

Vera Cruz: La Antigua, 1 (2039), S. E. Meek, 1901.

The Vera Cruz specimen is not included in *blanchardi* by Clay; it seems best to associate it here until further specimens throw light on the question thus raised.

Eudryas boddaertii melanolomus Cope.

Masticophis melanolomus Cope, Proc. Acad. Nat. Sci. Phila., 1868, p. 105, 1868—Yucatán.

Eudryas boddaertii melanolomus Stuart, Occ. Papers Mus. Zool. Univ. Mich., 254, p. 2, 1933; Schmidt and Andrews, Field Mus. Nat. Hist., Zool. Ser., 20, p. 172, 1936.

Yucatán: Mérida, 2 (19426, Eunice Blackburn, 1934; 20627, E. Wyllys Andrews, 1934).

These specimens are discussed by Schmidt and Andrews (loc. cit.).

Thamnophis macrostemma macrostemma Kennicott.

Eutaenia macrostemma Kennicott, Proc. Acad. Nat. Sci. Phila., 1860, p. 331, 1860—Mexico City.

Mexico: Chalco, 23 (1097, 1098, 1265, 1279, 2037), S. E. Meek, 1901 and 1903.

Lerma, 1 (1299), S. E. Meek, 1903.

Michoacán: Pátzcuaro, 9 (1101, 1396), S. E. Meek, 1901.

Puebla: Puebla, 11 (1320), S. E. Meek, 1903.

The subspecies is separated from *m. megalops* largely on the basis of caudal counts. In caudal counts of males, 95 per cent of *m. macrostemma* have 78 or less, while 93 per cent of *m. megalops* have 79 or more; in females there is no overlap. In ventral count of females, 71 per cent of *m. macrostemma* have 158 or less, while 70 per cent of *m. megalops* have 159 or more; the overlap in males is complete. In total counts, of males, 95 per cent of *m. macrostemma* have 242 or less, while 93 per cent of *m. megalops* have 243 or more; in females of *m. macrostemma*, 80 per cent have 221 or less, while in *m. megalops*, 100 per cent have 222 or more.

Kennicott's description of *megalops* precedes the description of *macrostemma* by one page; Ruthven (Bull. U. S. Nat. Mus., 61, p. 44, 1908), probably for this reason, chose *megalops* for the specific name, placing *macrostemma* in its synonymy. This cannot stand, however, for Ruthven was not the first reviser. Cope had selected *macrostemma* many years before (Proc. Acad. Nat. Sci. Phila., 1866, p. 306, 1866). In this paper specimens are listed from Fort Whipple, Arizona, under the name *Eutaenia macrostemma*; the name *megalops* does not appear, although a key to certain forms of the genus is included. I infer that Cope considered the two presumed species synonymous, and that he selected *macrostemma* to represent the species. This is supported by Cope's subsequent treatment of *macrostemma* (Bull. U. S. Nat. Mus., 1, p. 41, 1875), "*Eutaenia macrostemma* Kennicott, subspecies *megalops* Kennicott. . . ." Thus, if *macrostemma* and *megalops* are identical, or are allied as subspecies, the species should be known as *Thamnophis macrostemma* Kennicott.

Thamnophis macrostemma megalops Kennicott.

Eutaenia megalops Kennicott, Proc. Acad. Nat. Sci. Phila., 1860, p. 330, 1860—Tucson and Santa Magdalena, Arizona.

Chihuahua: Chihuahua, 1 (1266), S. E. Meek, 1901.

Colonia Juárez, 15 (1100, 1267, 1268), S. E. Meek, 1901.

Jiménez, 3 (1270), S. E. Meek, 1901.

Miñaca, 3 (1273), S. E. Meek, 1901.

San Andrés, 3 (1275), S. E. Meek, 1901.

Durango: Coyotes, 7 (1503), Heller and Barber, 1904.

Durango, 1 (1385), S. E. Meek, 1903.

Lerdo, 1 (1400), S. E. Meek, 1903.

Jalisco: Ocotlán, 1 (1274), S. E. Meek, 1901.

VARIATION IN SCALE COUNTS OF THAMNOPHIS MACROSTEMMA

	SEX	CAUDALS			VENTRALS			TOTAL VENTRAL COUNT		
		No. spec.	Range	Average	No. spec.	Range	Average	No. spec.	Range	Average
<i>m. megalops</i>	♂	14	78-89	83	15	159-169	165	14	242-255	249
	♀	14	69-89	75	17	149-161	156	14	222-260	236
<i>m. macrostemma</i>	♂	20	65-79	73	27	159-169	164	20	226-244	236
	♀	10	63-67	65	20	152-171	161	10	214-228	220

Conophis concolor Cope.

Conophis concolor Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 318, 1866—Mexico; Schmidt and Andrews, Field Mus. Nat. Hist., Zool. Ser., 20, p. 178, 1936; Andrews, l.c., p. 358, 1937.

Yucatán: Chichen Itzá, 4 (20610-1, 26986-7), E. Wyllys Andrews, 1934 and 1937.

Mérida, 2 (19411, 19413), Eunice Blackburn, 1934.

The two specimens (26986-7) whose scutellation has not been previously recorded have 19-19-17 scale rows; ventrals 160, 168, respectively; caudals 67+, 69; supralabials 8-8; infralabials 10-10, 9-9; oculars 1-2; total length of 26986 (the largest, with tail incomplete) 938+, tail length 191+.

Conophis viduus Cope.

Conophis viduus Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 137, 1876—Tehuantepec.

Oaxaca: San Gerónimo, 1 (1457), Heller and Barber, 1904.

Male; scale rows 19-19-17; ventrals 160; caudals 74; supralabials 7-7; infralabials 9-10; oculars 1-2; temporals 2-2-3; total length 504; tail 121.

The stripes on the body are brown, not black as in *vittatus*; the lateral pair involves the second, third, and fourth scale rows, while the median row involves the eighth, ninth, tenth, ninth, and eighth rows; the lateral edges of the median dark stripe are black.

Conophis vittatus Peters.

Conophis vittatus Peters, Monatsber. Akad. Wiss. Berl., 1860, pp. 519, 520, pl., fig. 3, 1860—type locality unknown, restricted to Acapulco, Guerrero.

Conophis sumichrasti Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 137, 1876—Tehuantepec and Guadalajara, restricted to Tehuantepec (city).

Guerrero: Laguna Coyuca, near Acapulco, 1 (25881), Walter Mosauer, 1935.

Male; scale rows 19-19-17; ventrals 156; caudals 65; supralabials 7-7; infralabials 8-9; oculars 1-2; temporals 2-2-3; total length 514; tail length 110.

There are four distinct, black stripes on the body, the lateral pair involving the third and fourth scale rows, and the medial pair involving the eighth and ninth rows; a median dorsal light stripe, occupying the median scale row and half of the adjacent scale rows over most of the body, extends from the neck to the tail.

Conopsis nasus Günther.

Conopsis nasus Günther, Cat. Snakes Brit. Mus., p. 6, 1858—Mexico.

Mexico: Chalco, 2 (987a-b), S. E. Meek, 1901.

Vera Cruz: Orizaba, 1 (1462), Heller and Barber, 1904.

The two from Chalco are males, the one from Orizaba a female; all have 17 scale rows throughout; ventrals 117, 118, 131, respectively; caudals 37, 38, 30; supralabials 7-7, 7-7, 6-6; infralabials 8-8, 7-8, 6-7; oculars 1-2 in all; temporals 1-1-3 on one side of 987a, 1-2-3 in others; total length 215, 182, 177; tail length 42.5, 34, 27. In the two males the loreal is absent, while in the female it is present; in 987a the preocular and nasal are in contact, while in 987b the prefrontal separates them; in 987a the frontal is in contact with the internasals; the nasal is entire in all. The two posterior maxillary teeth of 1462 are grooved.

A broken, median dark stripe one scale row wide is present, and a faint lateral stripe occurs on rows 3 and 4, mostly on 4.

Kennicott's *Toluca lineata* (U. S.-Mexican Bound. Surv., 2, p. 23, pl. 21, fig. 2, 1859, from valley of Mexico) is perfectly represented by 987a.

Tantilla moesta cuniculator subsp. nov.

Tantilla moesta Schmidt and Andrews, Field Mus. Nat. Hist., Zool. Ser., 20, pp. 180, 181, 1936.

Type from Mérida, Yucatán. No. 19408 Field Museum of Natural History. Female. Collected by Eunice Blackburn, 1934. Paratypes two topotypical females, Nos. 19407, 20605, Eunice Blackburn and E. Wyllys Andrews, 1934.

Diagnosis.—Similar to *Tantilla moesta*, having seven supralabials, two postoculars, rostral scarcely visible from above, a broad frontal and a light, dark-bordered nuchal collar; differing from *moesta* in

number of subcaudals (49 to 53), absence of pigment on ventral scales, presence of a dark lateral area sharply differentiated from a somewhat lighter dorsal color, snout light, and a small or large light spot behind eye.

Description.—Portion of rostral visible above less than half the length of internasals; latter two and one-half times as long as broad, tapering laterally; prefrontals slightly broader than long, more than twice as long as internasals; frontal hexagonal, longer than its distance from end of snout, about twice the width of a supraocular; nasal divided, narrowly in contact with preocular; one preocular, two postoculars; parietals slightly longer than their distance from end of snout; temporals 1-1; seven supralabials, third and fourth entering eye; seven infralabials, the first separated from each other by contact of mental and anterior chin-shields; latter twice as long as posterior chin-shields; four infralabials in contact with anterior chin-shields.

Scales in 15 rows throughout, smooth; ventrals 149; anal divided; caudals 49; total length 101; tail length 20.

Dorsal surface of head dark brown, except a broad area on tip of snout, the lower edges of the first four supralabials, a rounded area behind eye extending to lip, and the extreme posterior edges of the parietals and secondary temporals, which are white or cream; a light, dark-bordered nuchal collar involving two rows of scales on the neck, the posterior tip of the parietals and secondary temporals and the posterior half of the last supralabial; a broad, tan dorsal area on body, rather sharply defined from a darker lateral area involving the first, second, and third scale rows; a dimly visible, dorsolateral light stripe about one scale wide; lateral dark stripe becoming somewhat lighter ventrally, completely disappearing at the edges of the ventrals; ventral surface immaculate, save a few dark markings on the infralabials.

Notes on paratypes.—The scutellation of the head in the two paratypes is practically identical with that of the type. The first infralabials are in contact with each other medially in one. The ventrals and caudals of 19407 and 20605 are, respectively, 154, 53, and 140, 49; total and tail lengths 96 and 20, and 94 and 19. In coloration the only notable variation is in the size of the light spot behind the eye, which is very small and inconspicuous in the smallest specimen (20605).

Comparisons.—The subspecies differs from *moesta moesta* in the number of subcaudals (49 to 53 in *m. cuniculator*, 55 to 63 in *m.*

moesta) and in coloration. The typical form has the entire belly and the mental region pigmented, the nuchal ring complete ventrally, the snout dark, lacks a light spot posterior to the eye, and shows no differentiation in coloration of the lateral and dorsal surfaces of the body.

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